

CLAIMS

1. A printer having a housing that encloses, in a common cavity thereof, an
5 arrangement comprising a digital area array display, a plurality of lenses, and an
image plane onto which a photosensitive medium may be superposed, the
arrangement is such that:
- (a) said plurality of lenses are located between said digital area array display
and said image plane;
- 10 (b) said digital area array display, said plurality of lenses, and said image plane
are spaced along an optical axis extending from said digital area array display
through said plurality of lenses, and toward said image plane such that a digital
image provided by said display can be brought into focus onto said imaging
plane by said plurality of lenses; and
- 15 (c) one of said plurality of lenses is a transposable lens, said transposable lens
capable of being transposed out of said optical axis during the operation of said
printer, to increase the perceived resolution of the digital image focused onto
said imaging plane.
2. The printer of claim 1 wherein said digital area array display is a
microdisplay.
3. The printer of claim 1 wherein said digital area array display is a liquid
crystal display.

4. The printer of claim 1 wherein said plurality of lenses comprises a first lens and said transposable lens.

5. The printer of claim 2 wherein the diopter power of said transposable lens is less than the diopter power of said first lens.

6. A device for transposing a transposable lens, said device comprising:

a first lever having a first end and a second end, said first end coupled with a linear motion control device;

5 said second end rotatably disposed with a fixed support, said second end also disposed with said transposable lens;

a second lever having a second lever first end and a second lever second end, said second lever first end coupled with a second linear motion control device;

10 said second lever second end rotatably disposed with a second fixed support, said second lever second end also disposed with said transposable lens; and

a biasing means having a biasing means first end and a biasing means second end, said biasing means being fixed at said biasing means first end, said
15 biasing means second end being attached to said transposable lens.

7. The device of claim 6 wherein said first and second linear motion control devices are solenoids.

8. The device of claim 6 wherein said first lever and said second lever are coupled to said transposable lens at different locations.

9. A device for transposing a transposable lens, said device comprising:

a first translating means for transposing a transposable lens in a first direction;

5 a second translating means for transposing said transposable lens in a second direction; and

a biasing means having a biasing means first end and biasing means second end, said biasing means being fixed at said biasing means first end, said biasing means second end being attached to said transposable lens.

10. A method of imaging a digital display onto an image plane, said method comprising the steps of:

a) providing a digital display, a plurality of lenses, and an image plane onto
5 which a photosensitive medium may be superposed, said digital display, said plurality of lenses, and said image plane are spaced along an optical axis extending from said digital display through said plurality of lenses, and toward said image plane such that a digital image provided by said display can be brought into focus onto said imaging plane by said plurality of lenses, and one
10 of said plurality of lenses is a transposable lens, said transposable lens capable of being transposed out of said optical axis during the operation of said printer;

- b) illuminating said digital display with a first digital image data set for a fixed period of time, turning off said digital display;
- c) transposing said transposable lens a fixed distance, in a first direction;
- 15 d) illuminating said digital display for a second fixed period of time, using a second digital image data set, turning off said digital display; and
- e) whereby said method of imaging increases the perceived resolution of the digital image focused onto said imaging plane.

11. The method of claim 10 wherein a photosensitive medium defines said image plane.

12. The method of claim 10 wherein said digital display is a microdisplay.

13. The method of claim 10 wherein said digital display is a liquid crystal display.

14. The method of claim 10 wherein said fixed distance is a distance being less than the width of one pixel of said digital display.

15. The method of claim 14 wherein said fixed distance is equal to one half of the width of a pixel on said digital display.

16. The method of claim 10 wherein transposing said transposable lens said fixed distance for a second time, and using a third digital image data set to

illuminate said digital display for a third fixed period of time, turning off said
5 digital display.

17. The method of claim 16 wherein said transposing is in a second direction,
which is different from said first direction.

18. The method of claim 17 wherein transposing said transposable lens said
fixed distance for a third time, and using a fourth digital image data set to
illuminate said digital display for a fourth fixed period of time, turning off said
5 digital display.

19. The method of claim 18 wherein said first, second, third and fourth fixed
periods of time are a portion of said photosensitive medium's total exposure
time.

20. The method of claim 18 wherein said jogging is in a third direction, which is
different from said first and second directions.